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Circular No. 70.

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# SCARLET FEVER.

## PREVENTION AND RESTRICTION.

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ISSUED BY

THE STATE BOARD OF HEALTH OF CONNECTICUT.

Please read carefully and preserve for future use.

Copies can be obtained of the Secretary at New Haven.

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# SCARLET FEVER.

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**Scarlet Fever is one of the most contagious diseases.** It is oftenest seen in children under ten years of age. Adults are less liable to the disease, and oftener have it in a milder form than that prevalent among children at the same time. A malignant variety may be communicated from a mild case. This often explains the spread of the disease, which may have been unnoticed in the first case. It usually appears about a week after exposure to contagion, but the period may be longer or shorter.

**Scarlet fever, scarlatina, and canker rash** are all names for one and the same disease.

The small bran-like scales from the outer skin that are shed so freely may lodge in any article in use about the patient, and become a source of contagion. The contagion is mainly in the matters from the skin, head and nose. All the excretions of the patient are more or less contagious. Some of these products retain their vitality for years, and under favorable conditions reproduce the disease.

**A specific poison or contagion** is believed to be the cause of the disease. The poison or contagion is reproduced in the sick person in unlimited quantity and may be conveyed by personal contact or by any infected article. Mild cases can induce malignant and fatal results in others, and the subjects of mild attacks themselves are liable to the severe complications that follow malignant attacks. The disease is often communicated by a mild case. A convalescent patient, apparently nearly well, if allowed to mingle with his playmates, while the scaling or peeling of the skin is still going on, can carry the contagion to them as certainly as when he was in the highest stage of his sickness.

**Isolation** of the patients is therefore important in all cases, both mild and severe, and should continue as long as there is any desquamation of the skin and until it become perfectly smooth and sound.

**Filth**, unsanitary surroundings, and imperfect ventilation increase the severity of the disease and the danger of its spreading and becoming epidemic, also **overcrowding**, together with all agencies that depress vitality and strength.

## PRECAUTIONARY DIRECTIONS.

**The Room.**—When a person is attacked with scarlet fever, place him in a room by himself, the larger the better, and by preference in the top of the house. Before his admission remove all unnecessary articles from the room. Carpets, woolen curtains, and upholstered furniture are especially liable to become infected.

**The Nursing.**—Not more than one or two attendants should occupy the room to nurse the sick person. The nurse should wear no clothing which would be injured by washing. Children especially should not be allowed to enter the room.

**The contagion** is contained in all the excretions of the patient, and in the bran-like scales of the outer skin that are shed so freely in convalescence. The matters that come from the head, throat, nose, and skin are especially contagious.

It is an important point to **deal with the contagion at its source** and act promptly, under all circumstances. Delay gives opportunity for its diffusion. House flies and other insects, by access to the vessels containing excreta, may carry it about. Drying may convert it into dust to float in the air. Destroy the infection at the point of origin, if possible.

**The excreta** should be received in vessels containing a quart of Solution No. 1 for each discharge, and should be left in the vessel at least an hour before throwing into privy vault or water closet. The vomited matters and sputum should be received in vessels containing the like solution.

Or Milk of Lime, Solution No. 4, may be used and mixed intimately with the excreta until it is strongly alkaline, (tested by litmus paper).

**All linen and cotton articles** used about the patient should be at once immersed in a wooden tub containing two fluid ounces of Solution No. 3 to each gallon of water, and left in soak not less than two hours, or in a solution of carbolic acid,  $\frac{5}{8}$  iii to a gallon, for four hours. They should then be sent to the laundry and **boiled**. Under no circumstances should the sheets or underclothing be carried from the room dry, and care should be taken not to shake off the branny scales to infect other articles.

Outer garments of wool or silk, and similar articles which would be injured by immersion in a disinfecting solution or by boiling, should be exposed for two hours to a dry heat

N. B.—Solutions No. 2 and 3 should not be placed in metal receptacles. Only a wooden tub or earthen crock is suitable for these solutions.

230° F., or fumigated with burning sulphur. Any articles of clothing or bedding taken from the room before disinfecting should be tied up in a sheet saturated with Solution No. 3.

**Dust and dirt** must be removed by **damp** cloths, as sweeping and dusting are objectionable. These cloths should be at once thrown into the solution or into the fire.

**Books, toys and articles** used to amuse the patient when convalescent are best disposed of by burning them in the room. Under no circumstances should toys *be borrowed to return*, nor used by the well.

No children should be allowed **to go to school** from the house, nor allowed to play with others that have not had the disease. As a rule the slightest cases, where the child is not confined to the bed, oftenest spread infection, as little care is exercised for prevention.

When fully convalescent, the patient should receive a warm bath in carbolized water, or carbolic soap may be used. When no roughness of skin remains there is little if any danger to be apprehended of conveying the disease. It is difficult to fix any definite period when there is no longer any danger of conveying the disease, as the types and varieties are so numerous, and of all grades of severity. From a wide experience of treating the disease, the average period of six weeks has been stated; the more cautious give eight weeks as the proper period before a child should attend school and mingle freely with others. As the sequels of scarlet fever are so severe, this period is not oppressive, and in fact is demanded by the best interests of the public.

**All persons recovering from Scarlet Fever should be considered dangerous and therefore should not attend school, church, or any public assembly, or use any public conveyance, so long as the skin is peeling off, or the eyes are sore, or symptoms of dropsy exist.**

**Imunction during the "peeling process"** is useful in preventing infection. The body, head, and limbs, should be thoroughly annointed with vaseline, camphorated oil or similar substance, as the attending physician may direct, should he think it proper to use them.

And the entire surface of the body should receive occasional ablutions with solutions of chlorinated soda (Labaracque's solution) diluted with one part to twenty of water.

**The dishes used in the sick-room** should be washed

separately, first in Solution No. 1, then in hot water. For many purposes linen or cotton rags are useful instead of handkerchiefs, etc., especially when the throat symptoms are severe. After use they should be at once burned, together with all fragments and refuse.

**Perfect cleanliness** should be enjoined, especially if the attendant is obliged to mingle with other people. As **the hands** are very liable to be infected from the necessary care of the patient, a disinfecting solution (chlorinated soda, one part to ten of water should be used. After the use of the disinfecting solution the hands should be washed with plain soap and water. The disinfectant solution should be also provided for the physician's use on leaving the room should he desire.

The more malignant the type the greater need is there of these precautions, and isolation is necessary in the milder forms to prevent the spread of the disease. If the disease partakes at all of the nature of an epidemic, the utility of these precautions will be all the more apparent.

In the sick-room no disinfection can take the place of free ventilation and cleanliness.

**In case of death** the body should be wrapped in a sheet saturated with 60 grains of corrosive sublimate and two table spoonfuls of common salt in a gallon of hot water; or six ounces of pure carbolic acid in a gallon of hot water; and if to be carried out of the town must also be enclosed in an air-tight coffin, hermetically sealed.

**Funerals** of those dead from scarlet fever should always be strictly private. The bodies should never be exposed to view.

## DISINFECTION OF THE ROOM.

*When an apartment which has been occupied by a person sick with an infectious disease is vacated, it should be disinfected.*

The object of disinfection in the sick room is the destruction of infectious material attached to surfaces, or deposited as dust upon window-ledges, in crevices, etc. If the room has been properly cleansed and ventilated while still occupied by the sick person, and especially if it was stripped of carpets and unnecessary furniture at the outset of his attack, the difficulties of disinfection will be greatly reduced.

**Fumigation.** After the patient is removed from the room it should be thoroughly fumigated with burning sulphur, and afterwards, if possible, exposed to free-currents of fresh air for

several days. The articles used in care of the patient should be spread out so as to expose the greatest amount of surface. Heavy articles, blankets, and other woolen articles that cannot be washed in the Solution No. 3 should be fumigated with sulphur. The amount of sulphur to be used should be at least **three pounds** for every thousand cubic feet of air space. The number of cubic feet of air space in a room may be ascertained by multiplying together the length, width, and height of the room. All openings should be tightly closed, and the room kept closed for twenty-four hours. Care should be taken to secure the burning of all the sulphur. A tub half filled with water may be placed in the center of the room, and bricks piled up above the level of the water. An iron pan with the sulphur saturated with alcohol is placed upon the bricks. Ignite the sulphur with a match. Be careful not to breathe the fumes.

But fumigation with sulphurous acid gas alone, as commonly practiced, cannot be relied upon for disinfection of the sick room and its contents, including bedding, furniture, infected clothing, etc., as is popularly believed.

**After the fumigation** all surfaces should be thoroughly washed with *Solution No. 1*, diluted with three parts of water, or with solution of corrosive sublimate. *No. 2*, diluted with an equal amount of water may be used.

**The walls and ceiling**, if plaster, should be brushed over with one of these solutions and subsequently washed over with milk of lime, *Solution No. 4*.

Especial care must be taken to wash away all dust from window-ledges and other places where it may have settled, and to thoroughly cleanse crevices and out-of-the-way places. After this application of the disinfecting solution, and an interval of twenty-four hours or longer for free ventilation, the floors and wood-work should be well scrubbed with soap and hot water, and this should be followed by a second more prolonged exposure to fresh air, admitted through open doors and windows.

## PREVENTION.

The best preventive is to avoid the special contagion of the disease. Adults can do with impunity that which would result in the production of the disease in children. Care should be taken to prevent all unsanitary conditions. Decaying organic substances that pollute the air, contribute to the severity of scarlet fever, and intensify the effect of the virus. "Of the



unsanitary conditions external to the body liable to spread scarlet fever perhaps the most common are infected air, infected water and milk, and contact with infected substances or persons." Clothing worn by persons during sickness or convalescence from scarlet fever may retain the infection for many months.

It must be remembered that every person that has scarlet fever, whether in a mild or severe degree, creates around himself an atmosphere in which others that have not had the disease are liable to become infected, and that when death ensues, the body, while unburied, continues to be a center of infection.\* The infectious particles thrown off retain their vitality for a long period, undetermined as yet, but for several years at least, from authentic accounts.

In case of an epidemic especial care should be taken in removing all decomposing animal and vegetable matter. "All sources which contaminate the air with foul gases should be removed, and in times of an epidemic be declared a nuisance."†

A hospital for contagious diseases well managed, would save many lives, as in crowded tenement houses, isolation is out of the question. The idea at first is not a popular one, but once established, its powers for good will dispel all objections.

As can easily be seen, schools form a ready medium for the spread of scarlet fever. When the fact is known that scarlet fever or like contagious diseases exist in a house, teachers should not allow other children from such a house to attend school. Physicians could do good service here by notifying teachers of the existence of such diseases, and supplying certificates after recovery, showing that the child can no longer be considered a source of infection. Public sentiment can secure the abolishment of public funerals and exposure of the body, but a legal enactment is desirable for many reasons. The removal of bodies out of the town in which the persons died is prohibited by law, if the death is due to a contagious disease, unless the body is properly disinfected and placed in an air-tight coffin.

\* Circular of Kentucky State Board of Health on Scarlet Fever.

† Official Memoranda Local Government Board Great Britain. 6th report, page 308.

## DISINFECTING SOLUTIONS.

[Taken in part from the report of the Committee on Disinfectants appointed by the American Public Health Association.]

### SOLUTION No. 1.

*Dissolve Chloride of Lime of the best quality\* in pure water, in the proportion of four ounces to the gallon.*

### SOLUTION No. 2.

*Dissolve Corrosive Sublimate and Permanganate of Potash in pure water, in the proportion of two drachms of each salt to the gallon.*

This is to be used for the same purposes, and in the same way as *Solution No. 1.* It is equally effective, but it is necessary to leave it for a longer time in contact with the material to be disinfected—at least four hours. The only advantage which this solution has over the chloride of lime solution consists in the fact that it is odorless, while the odor of chloride in the sick room is considered by some persons objectionable. The cost is a little more. It must be remembered that this solution is highly poisonous. It is proper, also, to call attention to the fact that *it will injure lead pipes if passed through them in considerable quantities.*

It will be best to empty the vessel containing excreta and disinfectant into an earthen jar or wooden vessel, and to leave it for twenty-four hours, at the end of which time it may be thrown into a privy vault, or better, into a hole in the ground excavated for this special purpose.

### SOLUTION No. 3.

*Dissolve four ounces of Corrosive Sublimate in a gallon of water.*

Two fluid ounces of this solution to the gallon of water will make a suitable solution for the disinfection of clothing. The articles to be disinfected must be thoroughly soaked with the solution and left in it for at least two hours, after which they may be wrung out and sent to the wash.

### SOLUTION No. 4.

*Milk of Lime.*—To unslacked lime, placed in an earthen or wooden vessel, as much water as it will absorb is carefully added. The slacked lime is stirred up with four parts of water to form the "Milk of Lime."

\* Good chloride of lime should contain at least 25 per cent. of available chlorine. It may be purchased by the quantity at  $3\frac{1}{2}$  cents per pound. The cost of the standard solution recommended is therefore less than one cent a gallon. A clear solution may be obtained by filtration or by decantation, but the insoluble sediment does no harm, and this is an unnecessary refinement.